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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,344	05/11/2009	Hideki Nakamura	1086	2701
27649	7590	06/10/2010	EXAMINER	
MICHAEL TOBIAS			PATEL, DEVANG R	
1629 K ST NW				
SUITE 300			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20006			1793	
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			06/10/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/585,344	NAKAMURA ET AL.
	Examiner	Art Unit
	DEVANG PATEL	1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 14 May 2010.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 7-14 is/are pending in the application.
 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 11-14 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 11 May 2009 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>7/6/06</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 11-14 in the reply filed on 5/14/10 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. **Claims 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (JP-08-125327-A) in view of Kondo (US 4938410), and further in view of Mizoguchi et al. (US 5567151).

a. **Regarding claim 11, Takahashi** discloses a heater 1 (fig. 2) blowing hot air comprising a box-shaped body, an electric heater 7 inside the body, two

partitions 2 which divide interior of the body into a suction chamber 3 and discharge chambers 8 on opposite sides of the suction chamber. Each partition includes an opening which connects the suction chamber with one of the discharge chambers (bottom portion). There is a blower 6 installed in a lower portion of the suction chamber 3 and an upper end of each discharge chamber having slanted plates provides hot air discharge (¶ 22-28).

b. Takahashi does not teach the partitions 2 sloping towards each other. However, **Kondo** (also drawn to reflow heater apparatus) discloses adjacent partition plates sloping towards each other between heaters 11a (figs. 2-3). Kondo discloses that such partition plates retain the heated air in a predefined space (col. 7, lines 23-28). It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide sloping partitions in the heater of Takahashi since such is an art-recognized alternative of providing partitions in a reflow heater. The claim would have been obvious because a particular known technique (slanted partitions) was recognized as part of the ordinary capabilities of one skilled in the art and would have only yielded predictable result of retaining and discharging heated air (Kondo). Thus, Takahashi as modified by Kondo includes partitions sloping towards each other at an upper end of the suction chamber and reducing a width of the suction chamber.

c. Takahashi teaches slanted plates having discharge spaces therebetween, but does not teach a perforated plate having discharge holes. However, such

discharge plate is well-known in the art. **Mizoguchi** is directed to reflow furnace having hot air blowing plate and teaches a perforated plate 15 having multiple discharge holes 17 (fig. 3). Similar to **Takahashi**, **Mizoguchi** also discloses slanted directional flow plates 18. **Mizoguchi** teaches that such blowing outlet structure provides uniform heating of the circuit board (col. 4, line 58 thru col. 5, line 24). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the slanted plates of **Takahashi** so as to provide a discharge plate similar to **Mizoguchi** in order to provide uniform heating of the substrate (**Mizoguchi**). Moreover, the claim would have been obvious because the substitution of one known element for another (discharge blow plate) would have yielded predictable results to one of ordinary skill in the art.

d. As to claim 12, **Takahashi** as modified by **Mizoguchi** includes a separate perforated plate for each discharge chamber on opposite sides the suction port.

e. As to claim 13, **Mizoguchi** discloses the perforated plate surface covered with ceramic (col. 4, line 64). **Mizoguchi** further states that the ceramic surfaces of the blowing outlets radiate infrared radiation and multiplies heating effect to provide even, uniform heating of the circuit board (col. 5, lines 55-59). Hence, it would have been obvious to a person of ordinary skill in the art at the time of the invention to coat the perforated plate with a black ceramic in the heater of **Takahashi** in order to provide improved and uniform heat distribution.

f. As to claim 14, **Takahashi** as modified by **Kondo** includes a suction opening formed in the upper end of the body and communicating with the suction

chamber, wherein the area of the suction opening is smaller than the area of the upper end of each discharge chamber due to slanted partitions.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 7/6/06 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Conclusion

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devang Patel/
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793